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Participatory Digital Design

- A Study with Teenagers

Master thesis

30 credits

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Abstract

This master thesis explores Participatory Design where teenagers get the opportunity to participate in the public discussion of cultural heritage using their language and their own media. The traditionally Participatory Design focus has been on a work environment or the public space. Some Participatory Design project focus on children, but very few focus on teenagers. There is a need to bring the user into the design process when designing new technology, thus, if teenagers are the users, they should be brought into the design process and they will contribute on many levels.

The research done for this thesis have taken place at Trosterudklubben. This club is part of the governmental project Groruddalssatsningen which aims to improve the living conditions in Groruddalen with a focus on cultural heritage. Groruddalssatsningen is a co-operation between the government, local industry and the citizens of Groruddalen. In order to bring the youth of Groruddalen into the project teenagers were asked to participate in the thesis project.

Teenagers were included into the study by conducting sessions, interviews and questionnaire. In the sessions various tasks were given to the teenagers that they were asked to complete. The task included taking pictures with a camphone of their community, posting pictures taken and writing comments to the pictures on a public blog. The participating teenagers were involved in the sessions on voluntary basis and thus they were involved in various degrees.

An understanding of how teenagers can participate and contribute in a design process taking the roles as users, testers and informants in a technology design process were given through the case study at Trosterudklubben

This thesis shows that teenagers need a motivation factor to participate on voluntary basis in a technology design project. The study shows that there is a relationship between motivation and the amount of useful information, motivated teenagers provide the researchers with more useful information. Factors like where the sessions are conducted, group work, and competition increased the teenagers motivation to participate in the project and the conducted tasks.

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1. Introduction

The penetration of computer and other modern technology like mobile phones into children's everyday lives has lead to a growing attention to the field of child computer interaction. The involvement of children in design of information technology has in earlier years been widely discussed and so far the focus has been mostly on children and not so much on teenagers. Researcher like Allison Druin (1999b) has argued that the best design partners are children of age 7-10 teenagers on the other hand tend to be bored during the process. In this thesis I will mainly focus on teenagers between 13-17 and their possible roles in a system design process. I will look at how teenagers can contribute to a design process by taking the roles of informant, users, testers and design partners. The research will be conducted at a youth club where the participation at activities is optional and so was the participation in this project as well. Teenagers are experts of their everyday life and even though they might get bored easily researchers need to include them in the design process when the object is to design for teenagers. The researcher thus needs to find ways to maintain their attention through out the design sessions. This study will give a introduction of how one can conduct sessions with teenagers in their everyday activities after school life.

Almost everybody living in Norway have daily access to computers (SSB, 2007c). The computer is no longer just a tool that makes nice looking documents but many uses it to make their every day life easier for example statistics shows that more public and private services are offered online (SSB, 2007c). Hence we can divide the different users of different software programs into different groups with different needs, expectations, likes and dislikes when it comes to the use of software. The people designing the IT-systems cannot expect themselves to know all these different user groups and therefore they need to bring the users into the design process to learn from the user. The user can also learn from the designer. I will return to this in the chapter about Participatory Design (PD).

We adults assume that since we once have been kids, we can remember exactly what we liked fifteen or thirty years ago. When I was thirteen, Microsoft's Paint was the coolest computer program on my father's computer. If you put a thirteen year old girl in front of the computer today she will start making her own web page or chat with her friends, preferably both at the same time. She probably hasn't even tried Paint. My point is that times change, and so do we, because of this change we cannot expect to know what children of today like or dislike no matter how good memory we have. Their involvement is thus necessary.

In the field of participatory design one has traditionally focused on user participation at work places or in the public space. Children are in focus in some participatory design projects in combination with school projects. Further most of the projects focus on children of age 7-10 years old. It is hard to find projects where children between 12-18 years have participated in a design processes. The likes and dislikes of children of age 7-10 are not the same as for children of age 12-18 because of different level of knowledge and education.

1.1 Aim and Research Questions

This thesis is conducted in the context of a project called Groruddalssatsningen, which is carried out by the city of Oslo in order to improve the living conditions in Groruddalen. The project's aim is to improve the conditions from infrastructure to the knowledge about cultural heritage in Groruddalen. The project has a particular focus on bringing the inhabitants of Groruddalen into the project. The inspiration to the project came from the idea of letting the youth tell their own story about what they think of as their cultural heritage.

My aim in this thesis is thus to explore more about teenagers involvement in a project using participatory design. I will examine the following research questions:

1. How can voluntary user participation work in a design project?
2. What motivates children to voluntary participate in a user involvement design project?
3. How do teenagers use their own media to present their interpretation of cultural heritage?

1.2 Delimitations and Structure

I limit this thesis to not include blog and mobile phones as a technical tool, privacy issues, high tech prototyping and design, pedagogical and psychological aspects, cultural differences and privacy issues. I also limit this thesis not to include opinions of experts of Groruddalssatsningen.

This study does not focus on participatory design in a school setting, but discusses the theme when discussing theoretical framework. Most of the already existing research done in the field of participatory design with children are based on involuntary school setting.

A teenager is an adolescent between the ages of 13 and 19. In this thesis I use the term teenagers about people between 13 and 17. When I use the term child/children I by then mean people between birth and till 17. This use of the concept is depending on the fact that this study is based on teenagers of age 13 till 17 while the theoretical work that my study builds on mostly are based on children from 4 till 16.

This thesis is structured as follows: first an overview of the case will be given where the participants and the procedures are presented. After that the theoretical framework will be presented along with the different roles a youth can have in a design process. Further some methods for participatory design with children are presented. My result will be presented and discussed and lastly, the conclusion and future research will be presented.

2. Groruddalssatsningen

Groruddalen is a district in Oslo the capital of Norway. "Groruddalssatsningen" (The Groruddal commitment) is a political agreement that aims to improve the living conditions in the parts of Oslo with most immigrants (Aalandslid, 2007). This is a commitment that stretches over 10 years 2007-2016. The main goal is to give the community a lift by developing the city, doing an environmental rearmament, improve the life quality, and by this improve the living conditions. Groruddalssatsningen is a co-operation between inhabitants, organizations, neighbourhoods, businesses, districts and public institutions. Groruddalssatsningen has focus on user participation in order to reach goal to strengthened citizen's identity and pride is to be strengthened. Groruddalssatsningen have focus on user participation.

The background for this project is that the city council on the 21st of June 2006 decided to make a development plan for Groruddalen, which would improve the environment towards year 2030. Groruddalssatsningen has four main focus areas:

1. Safe guard of the environment.

2. A greener environment and a wither sports and cultural range in the community.

3. Improve housing, neighbourhoods and districts.

4. Adolescence, education, cultural activities and integration.

(Slipher, 2007)

The costs of this commitment will be decided on a yearly basis. In 2007 it is budgeted a little over 100 million Norwegian Kroner (Slipher, 2007).

The project includes a web site that is called Groruddalen (www.groruddalen.info). This will be a web site where youth and culture is in focus and it will contribute to a multicultural expression. The site will be run by the users and the goal is to show the creativity in Groruddalen. There will be used music, pictures, videos, blogs and forums. The web site will also distribute information about different activities in the community like sports groups, youth groups and organizations (Løvvig, 2007).

In "the Strategic Plan 2007-2010 for District Grorud" it says that the main focus and main challenge for the project is culture and environment. The main goal for the project says "Through active governmental control and profiling of the districts qualities with focus on living conditions, environment, culture and positive activities in the community, will the district of Groruddalen be a great place to live for everyone – life through"[1] (Bydel_Grorud, 2007). To reach the main goal the government of district Grorud have divided the goal into smaller secondary goals where the first have focus on culture. The strategic plan says "Contribute so that the districts history and cultural heritage will be documented and communicated" (Bydel_Grorud, 2007). I will in the next section look closer at subject cultural heritage.

[1] My translation

2.1 Cultural Heritage

> *"Cultural heritage is the road signs on the road towards an unknown future and a reference point to the past. Without these guidelines the community will fade and vanish"*
>
> **Wangari Maathai**, winner of the Nobel peace prize 2004 (Miljøverndepartement, 2005)[2]

Cultural heritage is our collective heritage. It is important to administer the cultural heritage because it can give our selves and our descendants an identity and a self realization. Cultural heritage gives us the feeling of belonging and of knowing our surroundings which make us feel secure. Cultural heritage can be both good and bad memories of the past. One might ask why is it so important to remember the bad things that have happened, the argument is that this is important so that we and our descendants can learn from the history.

The population in Oslo by 1st of January 2007 was 548 617. 130 690 of the habitants are none ethnic Norwegians this equals 23,80 percent of the total population in Oslo which means that every fourth Oslo citizen has immigration background (Andreassen, 2007). Combining the four city parts of the districts of Groruddalen, Alna, Bjerke, Grorud and Stovner, the total of non ethnic Norwegians are 46 017 this equals 35,21 percent of the total immigrated population in Oslo and 65,78 percent of the population living in Groruddalen. There is no clear borders between the different districts so if you count the four neighbour districts, Nordre Aker, Grünerløkka, Gamle Oslo and Østensjø, you will find 62,74 percent of the immigrated population in Oslo in this area (Andreassen, 2007). Why is this information important when talking about cultural heritage? It is important so that the different immigration

[2] My translation

groups experience that they also have a history in Norway and also has their cultural monument fitted into the Norwegian cultural heritage (Swensen et al., 2005).

What can and will be done by the Norwegian government to better conserve the cultural heritage of the immigrants in Norway? In the public management's work to secure the different minorities' cultural heritage, there are some challenges. There is a challenge to handle cultural expressions that are unfamiliar and unknown. It can be common features and differences in the work with minority groups which have lived in Norway for hundreds of years and those who have lived here for a relative short period of time. This implies among other factors that it demands strong requirements to the dialog with and the participation from the different groups and generations among the minorities (Miljøverndepartement, 2005).

What can cultural heritage be? And does an 8th grader think of the same thing as a sixty year old politician when it is talked about cultural heritage? The answer is; probably not. What is important is that each of them feels that they belong and have the feeling of being secure in their every day life. It is important to teach our children about what has been in the past, but it is also important to let the children know that what they do and where they live will be the cultural heritage for their descendants. It is important to let the children be a part of project and let them show us what they think is their cultural heritage, what they are proud of and what do they want to bring into the history.

The project at Trosterudklubben springs out of these ideas. We wanted to let the children show the rest of the world what Trosterud meant to their belonging, by letting them taking pictures and writing notes to the pictures and then post it online.

2.2 Trosterudklubben

Trosterudklubben is a youth club that is located in Groruddalen. The members of the club come from different parts of Groruddalen. Trosterudklubben is open two days a week, but also have some special arrangements outside the normal opening hours. The activities at the club are mostly run by the clubs members. The seven employees at the club are all active in different areas of the clubs activities. The clubs is a safe, attractive place to for children to go after school. The users are divided into two different age groups, "juniors" and "youth". The members of the "junior group" are age 7-12, while the "youth group" participants are 13-18 years old. Every week the club has an average of 200 youth attending.

The club offer different activities that the members can sign up for. Existing activities at the club today are; a song studio, film studio, media lab, Internet lab, computer game room, disco with DJ equipment, dance room, kitchen, activity room for soccer, basketball, etc. and a lounge where the billiard and Foosball tables are located. The members themselves are mostly in charge of the activities that take place at the club. They belong to different activity groups, which are in charge of the events with in their activity, such as dance competition, film creation, trips etc. Trosterudklubben has its own website that is created and maintained by some of the clubs members. Trosterudklubben is one of two youth clubs that is a part of Groruddalssatsningen.

In this project we have focus on teenagers (13-18 years old), the "youth group" at Trosterudklubben consists of the correct age group. We got in contact with Trosterudklubben through Groruddalssatsningen. Children as design partners are widely tested in school settings. This is why we wanted to have the sessions in a youth club. The users are there on voluntarily basis and can choose themselves how active they want to be in different activities.

3. Theoretical Framework – Participatory Design

"*Children are experts in their everyday lives.*
We cannot design future IT artefact for children
without involving these experts."
4th thesis of the BRIDGE project from Iversen (2005, pp. 82)

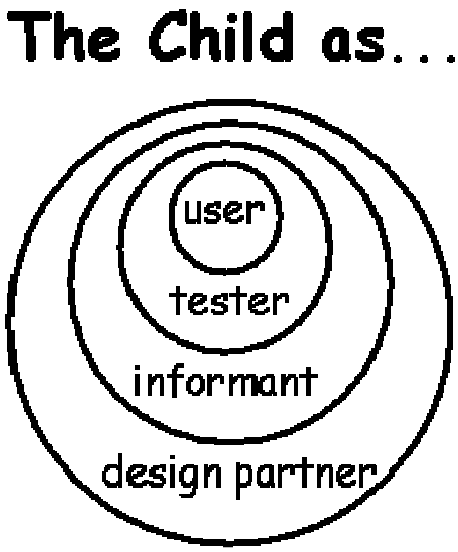
"Design means to "create or construct according to a plan", and most design literature emphasises planning. The word "design" originates from Italian designo: drawing, and the Latin root signum points to sign or mark. Design is both individual and social, and involves people with different skills and knowledge (like future users, managers, marketing people – and informaticians) in what can be seen as multidisciplinary, cooperative, constructive negotiation." (Bratteteig, 2003, pp. 127)

In the Scandinavian countries, user participation in system development has been discussed and practiced since the seventies (Bødker, 1996). Participatory Design (PD) implies active involvement of the people designed for and the stakeholders in the design work. The dogma of PD is the direct involvement of people in the shaping of future artifacts (Brandt, 2006). The focus of PD is not only the improvement of the information system, but also the empowerment of those so they can codetermine the information system and of its use in their workplace. Mutual learning is an additional dimension of PD. Mutual learning means that users and designers learn from each other during the design process, and both qualify themselves with respect to the systems development process they are involved in (Bratteteig, 2003). Further mutual learning means sharing knowledge about the professional perspectives involved in the development process. The idea is to share knowledge that explains the basic principles and values in the work. (Bratteteig, 2003)

Users as technology design partners have thus been a common practice in design of new technology for the last couple of years (Kuhn, 2000). It is not uncommon to work with journalists when developing a tool for journalists or to work with artists when developing a drawing program consequently we need to work with children or youths when developing a tool for children or youths. We cannot water down the software and hardware environment we have created for adults and expect them to be valuable also for children or teenagers (Druin, 1996). I will in this section look at the different roles that children can have in a design process, different methods used when children are the end users and how methods can be modified to suit a design process involving children. There is a need to establish new methodologies that enable us to stop and listen, and learn to collaborate with children of all ages. One common problem one has to deal with when designing with and for children is that the child is so used to the teacher-student relationship, by this I mean that the child is used to a situation were the adult is a teacher and that they need to listen and respond to what the adult tell them to do. It can be a challenge to overcome the teacher-student relationship when children are brought into the design process.

3.1 Roles of Children in a Design Process

When children are involved in a design process the designers need to have a clear idea of what role the children will have in the process. Druin uses four different roles a child can have in a design process, that is, user, tester, informant and design partner, see fig. 1. I will in this section introduce the four roles.



Figur 1: The four roles that children may take in the design of new technologies (Druin, 2002).

Druin (2002) argues that each role; user, tester, informant, or design partner can shape the technology design process and impact the technologies that are created. The roles are not necessary different from that of adult users however the methods, context and challenges can be different due to the involvement of children. (Druin, 2002)

3.1.1 Children as users

The first role is children as users. When a child is the user, the adult is observing the child and try to understand the child's activity, patterns, likes/dislikes and changes in learning. There are two reasons why the researcher wants to observe the child as a user. One is to test the general concept that may help inform future technology developers and another to better understand the process of learning which may contribute to future educational practices (Druin, 2002). The researcher can use different types of methods to observe the child, equipment available, time and money are other aspects to consider when one chooses methods. A factor to take into consideration is where you will have access to the children. If the test will be

performed at the children's school you need to adjust the research so that it does not interfere with the child's learning at school. One method that can be used is that the researcher becomes part of the classroom activities demonstrating software, answering questions, and so on. It is also common that the teacher becomes a part of the research team. Druin (2002) argues that they can be of great help because of there experience with children and experience of teaching in classrooms. When working with children outside school you have to take into account that the children are their on a voluntarily basis. The children might not understand what they will get out of helping the researchers. When the child is the user the researcher are looking to see how the child interact and how the child reacts to the technology.

3.1.2 Children as testers

Children as testers are a second type of involvement. When children are used as testers they are testing the prototypes or technology in order to find out if the technology meets the design goals. In this case the design phase has been accomplished by adults and the children test a prototype that is a result of this design phase. This involvement, tester is mostly the same compared to the role children as users. Here researcher observes the child when s/he is using the technology. With a goal to see if the technology meets the design goals. The researcher is focusing on what parts of the technology that is confusing, what part the child likes or where the bugs are (Druin, 2002).

3.1.3 Children as informants

The third role is children as informants. The children are involved as informants when they play a part in the design process. Before any technology is developed, the child may be observed with existing technologies, or they may be asked for input on paper sketches. Once the technology is developed, the child may again offer input

and feedback. Druin (2002) writes that the child is an informant when s/he plays a part in the design process at various stages, based on when researchers believe they can be informed by children. When children are informants they can have an impact on technology from the beginning of the design process Druin (2002). argues that even though children are not continually participants in the design process, children can have impact on what directions are taken, how the technologies are shaped, and ultimately how the technology are evaluated.

3.1.4 Children as design partners

In the field of Human Computer Interaction (HCI) partnering with users is an important way of understanding what is needed in developing new technologies also when designing for children. Children have their own likes, dislikes, and needs that are not the same as adults. Further, children have their own present practice that the designers' do not understand without bringing the children into the design process. When children hold the role of design partners they participate on equal terms compared to the adults in the design team. Hence the children need to be part of the design process at all levels. A child cannot do everything that an adult can do, but still they should have equal opportunity to contribute in any way they are able to in the design process (Druin, 2002).

Different methods can be used in a design process where children are design partners. Druin (2002) introduces Cooperative Inquiry as a type of research methods that began as methods for bringing adult users into the technology design process. From brainstorming methods that asked users and designer to sketch out ideas to interviewing methods than can capture user tasks, role and design ideas. Druin argues that these methodologies offer an excellent beginning structure for their research, but that they need to be adapted to suit a team that included children. One example of such a change is how to overcome the teacher-student paradigm invoked

by groups of older and younger researchers in favour of co-equal partnership (Druin, 2002).

Both children and adults need time to negotiate a new "power structure", in which neither adult nor children are completely in charge. Both must begin to work together toward common goals. Druin (2002) mentions that they found that when children accept their role as design partners, they better understand their role in evaluation and redesigning computer-related technologies.

No single technique can give a team all the answers that they are looking for in a design process. Because of this a combination of techniques has been adapted and developed to form the methodology of cooperative inquiry. These techniques do not necessarily offer a magic formula for working with children, but is rather a philosophy and approach to be used in research to gather data, develop prototypes, and forge new research directions (Druin, 2002). The Cooperative Inquiry, that Druin has introduced, includes Contextual Inquiry, Participatory Design, and Technology Immersion.

Druin gives an answer to the question of what one can expect of a design process that includes children? She argues that: "We cannot expect the children to know what educational goals need to be covered in a school curriculum as well as a teacher does. But we can expect children to tell us what excites and bores them, what helps them learn, and what can be used in their homes or schools. We can expect children to be creative, honest collaborators." (Druin, 2002, pp 28) It is important that the designers and researchers knows and respect this and do what they can to help the child to be creative and honest.

When the children's role in the design process is to be design partners it is important that the children and the adults on the team are "equal", that is, they have just as much to say in the process. When all the team members have a say in the design process, a complete range of experiences can be taken into account during the research process. Druin et al. (1998) mentions some techniques that they have found works with children. Some of these techniques are for example that children ages 7-10 years old make the most effective design partners and you need more than one child and more than one adult on the team. As opposed to being observed with the technology children are directly asked to work with researchers to collaboratively create "low-tech prototypes" out of for example paper, glue and crayons (Druin, 2002). This way, the adult researchers can identify new technology possibilities that might not have been considered otherwise. At the same time, children who are not well skilled in the development process can be inspired and empowered by their collaboration with adults to generate new ideas.

3.2 Methods

Participatory Design, Co-operative Design, Contextual Design and Co-operative Design are all methodologies that call for users to partner with researchers throughout the system design process. The methods in these methodologies need to be adapted to suit a team of children. Ole Sejer Iversen has introduced the BRIDGE where he adapts already existing methods to suit a design project involving children.

Participatory Design is a set of theories, practices, and studies related to end-users as full participants in activities leading to software and hardware computer products and computer-based activities (Muller, 2002). It implies an active involvement of the people designed for and other stakeholders in the design work. (Brandt, 2006) When designing with children Participatory Design get some new challenges. Participatory Design means that the two parts, user and developer, sort of meets on the middle. The

user brings knowledge about his/her everyday life while the designer brings knowledge about the possible technology. Together they will design a solution that will simplify the everyday practice of the user. When designing with children the challenges are to use methods and techniques that will show the designer the true practice of the child. The child as described above does not have the same self-awareness as an adult and might not understand which details are important in a design process. That is why it is the designer's responsibility to apply techniques and tools allowing both the child and the designer to acquire knowledge in the design process (Iversen, 2005).

3.2.1 The BRIDGE method

The BRIDGE method is Ole Sejer Iversen contribution to the Interaction Design and Children (IDC) community. Iversen (2005) introduces the method in his PhD Dissertation "Participatory Design Beyond Work Practices – Designing with Children". The BRIDGE method approaches design with children and adults from the same perspectives, but also implies that Participatory Design techniques must be adjusted according to the practice of children.

Why the name BRIDGE? Iversen (2005) talks about the ideas he had when he first started the research project. He wanted to develop a method that could bridge general Participatory Design principles and the field of designing with children. The Bridge method is according Iversen (2005) based on an Activity Theory approach to children and childhood. The activity theory positions the children's meaningful practice as point for the development of new IT-artefacts for children. The Bridge method approaches designing with children and adults from the same perspectives, however the Participatory Design techniques must be adjusted according to the practice of children (Iversen, 2005).

Iversen (2005) writes about the differences from designing with children compared to designing with and for adults in a professional work practice. In designing for adults the users presents work practise is the point of departure for design. The user has some knowledge of their work and contributes to the user-developer communication with knowledge about their own world that is to some extent unknown to the developer. Iversen (2005) argues that children's everyday life is a practice with its own socio-cultural conditioned norms, values and concerns and this everyday practice can provide a valuable input for design of children's technology.

In his PhD dissertation Iversen (2005) provides us with 10 theses of the BRIDGE method. Thesis 2 says that designing with children is not symmetrical. By this Iversen (2005) means that the responsibility for changing the future practice lays on the designers. Designers are professional design practitioners with an anchored in-dept understanding of the process of changing practice.

3.2.2 BRIDGE - Techniques and tools

Iversen (2005) explains seven techniques and tools for the BRIDGE method. Probing Practice, this technique provides a workshop setting for inquiry into the children's appropriation of new technology in their existing school practice. The technique is a continuation of the Technology Immersion that Druin et al. (1998) introduced.

Fictional Inquiry, this is a way to gain insight into children's present practice by role playing. By introducing a fictional shared place of role-play temporarily it removes existing norms, values and power relations between designers and children. This way the designers can ask odd questions and exposes the children to the structure of their present practice.

"Rapid Evaluation in Context", this technique provides the designers with an ability to evaluate prototypes in context. New IT-artefacts are used in the children's everyday practice. The children are able to address the new IT-artefact according to their needs, desires and wants. Designers can get a good insight into the future by using this technique.

"School Tales", This Technique provides the designers with an understanding of children's practice. School tales can be small video segments of everyday situations. This technique is performed by following for example a school class for a period of time. The children are exposed to the material and reflect on the episodes in informal conversations with the designer.

"Video Prototyping", a prototyping process is videotaped. This technique gives the designer insight into visions and design proposals and concrete experiences with technological options.

"Off-loop Reflection"; Video Design Case & Concept Design Game, these are two techniques that offers a valuable input when working with knowledge concerning the designers present practice. Video Design Case lets the designers explore short snipes of video that documents real life design team activities. The idea is to use video to bring practitioners as close as possible to the actual design action, and thus to minimize the gap between the material and the designer's own practice. Concept Design Game invites designers to "play" a design process in a game frame. This offers ways of trying new design moves.

Video Recording, The use of video recording in a design process when children are involved is widely discussed. Some argues that the child acts in front of the camera

thus the activity is different from the child's practice and therefore should not be used. Iversen (2005) argues that if one accept that the activity is different from their existing practice then the users act normal in the situation in which a camera is present.

The 4th thesis of the BRIDGE method: "Children are experts in their everyday lives. We cannot design future IT artefact for children without involving these experts." (Iversen, 2005, pp. 82). No matter which methods, techniques or tools used, by following this advice in some way the final IT-artefact developed will have a greater change of succeed on the market.

3.2.3 Contextual Inquiry

The idea of Contextual Inquiry is to collect data in the users own environment. Generally users are observed performing typical activities and researchers ask questions to the users when clarifications is needed. A modified form of Contextual Inquiry was used by Druin et al. (1998) in either in the child's home or in a public place. Druin et al. (1998) wanted to focus on what happens with children and technology outside the school environment since schools already are so well researched. The method written uses one interactor and two note takers. The Interactor did not take notes because children easily get disturbed if the person interacting with them takes notes during a session. The two note takers had different focus areas, one noted everything the child said while the other noted the child's actions, and both note takers took notes of the time so that the quotes and activities could be synchronized in later data analysis. The interactor would avoid asking questions that would steer the activities of the child. Druin et al. (1998) found it important that the interaction was to be lead by the child user, not the adult researcher.

When using this method after a period of time (min. one day, max. one week) the research team need to chart and diagram the experiences. The researchers diagram the

experiences based on patterns of the activity and roles that the child play. Druin et al. (1998) argues that in this way a more complete picture of the child emerged. The column "Design Ideas" is a start of a brainstorming process. It offers new ideas for the development of new technology that can be related directly to the observed data.

3.2.4 Technology Immersion

When children are exposed for technology either at school or at home it is often a time limitation on their use and they often have to share computers with others, either class mates or siblings. With the method of Technology Immersion children are provided with a technology-rich environment. This methodology supports children with a large amount of technology like PCs, Macs, printers, digital cameras etc. Druin et al. (1998) argues that with technology immersion a combination of technology, time and freedom of choice offers researchers more opportunity to understand what children do and want with technology. Using this approach encourages children to make their own choices giving them control over their technology exploration. Druin et al. (1998) writes that in their research the same activity patterns found in the Contextual Inquiry research became more obvious in the Technology Immersion experience.

3.3 Other Guidelines for Designing for Children

When designing for children compared to adults one need to modify some of the methods and techniques normally used in a design process. The modifications vary from each method and each design process. The KidPad project was collaboration between University of New Mexico's Computer Science Department, The College of Education and local Albuquerque elementary school children. The goal for the project was to develop an expressive digital medium with an intuitive zooming interface, to

support a learning environment for children. (Druin et al., 1997) As for the KidPad project they saw that children as design partners needed time, experience, self-awareness, and confidence in the design relationship. With adults design partners these factors may not be something necessary to develop; with children it may be critical (Druin et al., 1997). Most of the time users have trouble expressing or they simply don't know exactly what they need or want for the new technology that is being designed. Children are often even less self-aware or verbal about their needs than adults are. As design partners they must be given opportunities for communication and self-awareness, either through experience with technology or through exercises that ask them to se possibilities using low-tech prototyping tools (Druin et al., 1997).

Time and resources available is also something to take in to consideration. Some of the methods described in the previous sections demands lots of children, time and money. When you are performing a design process you will have to look at what you have available and then modify the methods and techniques according to your resources. I am convinced that you can get good results in smaller projects as well as in great ones.

As earlier described Druin et al (1998) found some techniques that better work with children. One of these techniques says that children age 7-10 years old make the most effective design partners. One problem here is that children of age 10 and 13 have different likes and dislikes and they also use technology in different ways. So even though Druin et al., (1998) have found that this age group makes the best design partner, we still need to be able to use children outside of this age group when designing new technology for children, but we have to be aware of why these children do not make the best design partners and adjust our methods according to their age.

4. Reaserch Methodology

This chapter introduces the research methodology and the empirical setting that the study is based on. The purpose of this chapter is to demonstrate the problem specification, the selection of objects and variables, the collection of data and the analysis of data. Moreover, to give an explanation of the setting, the choices taken, and the actual execution of the study.

4.1 Qualitative reasearch

The choice of research methodology is all about how you choose to approach the problem description. Meaning, how the collection of data is done, how the problem is approached, and if the use of the selected method will lead to valuable knowledge. There are many ways to classify research, but the most common way is to divide them into two, quantitative and qualitative research methodologies (Silverman, 2006). "Quantitative research methods were originally developed in the natural sciences to study natural phenomena" (Myers, 1997, pp 241) and is "a study that aims to quantify attitudes or behaviours, measure variables on which they hinge, compare, and point out correlations (...). It requires the development of standardized and modifiable measurement instruments" (Ipsos, 2007). On the other hand, "qualitative research methods was developed in the social sciences to enable researchers to study social and cultural phenomena (...), and can be found in many disciplines and fields, using a variety of approaches, methods and techniques" (Myers, 1997, pp. 242). The motivation for doing qualitative research, as opposed to quantitative research, comes from the observation that, if there is one thing which distinguishes humans from the natural world, it is our ability to talk! Qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live (Myers, 1997).

4.2 Collection of data

The main objective in the data collection is to get the data supposed to be used in the study. There are two sources of data: existing data and special collected data. Special collected data for the research is often divided into three main collection methods: observation, interview and quantitative questionnaires, in addition exists techniques such as participant observation and fieldwork (Hellevik, 1992).

4.2.1 Existing data

The collection of existing data was first done in the objective to get to know the subject Participatory Design better. In addition it was to conduct a review of what existing literature said about Participatory Design with children that was going to be examined and to discover what is missing and need to pay more attention to I have used the following scientific resources through University of Oslo's scientific research databases:

- ACM Digital Library
- In addition to the search engine: Google Scholar

The articles found by these resources were first gathered, and then examined carefully and finally the most relevant were selected. Some relevant books were read in addition to a master thesis regarding Participatory Design and children to get an overview of different approaches to analyzation and exploration of the problem domain. Also, a study of different reports related to Groruddalssatsningen and behaviour of non-ethnic Norwegians have been collected.

4.2.2 Special collected data: Observation, interviews and qualitative questionnaire

The collection methods that were used for the special collected data were observation, interviews and qualitative questionnaires. There were conducted observation of 10 participants, four interviews and the same 10 participants as was observed answered a questionnaire.

An observational study was conduced observing 10 participants performing assignments given by the researchers. An observational study is when data is gathered and collected, and a researcher or an assistant register, watching, recording, and analysis the observed behaviour of a phenomena as it occurs in a natural setting (Hellevik, 1992). Observations can be clear or covered for those observed. If the observer are unaware of the observation, the behaviour of the observations will be unaffected of the impulses from the researcher/observer (Hellevik, 1992). The objectives of the observation in the research were clear to participants.

Additional to the observations a sample of four teen participants, all selected randomly from the participants at Trosterudklubben was interviewed. The idea is to see the respondents' answers as cultural stories. This means examining the rhetorical force of what the interviewees says (Silverman, 2006). Interviews were chosen, first because the data from the interviews in addition to the observations, gave a possibility to explore and clarify the likes and dislikes of teenagers regarding computers, Internet and mobile phones. Second, the non verbal reaction, which also was essential, was viewable for the researcher. The participants that participated in the interview was of different age, had different background and decided themselves if they wanted to be interviewed in a group or by them selves.

There are three types of interviews: structured, semi-structured and open (Silverman, 2006). This research used a semi-structured interview with both close and open questions. The following-up questions and value applied in the questions and answers were determined by the interviewer. Semi structured interviews were favourable to capture the interview objects' different thoughts on the subject. The interviewers had a short list of questions to be covered, to keep the focus and same structure of the different interviews, but follow up questions and examples were allowed. The questions were open ended, meaning that they were designed to encourage a full, meaningful answer using the interview participants own experience, knowledge and feelings. The interviews lasted from 10 minutes to 45 minutes they were all conducted face-to-face

Additionally to the observations and the four interviews, 10 participants answered a qualitative questionnaire.

4.3 Analysing of data

Paralleled with the existing data collection, the data were analyzed and interpreted, with the intention to bring order and understanding. The objective of the analysis was to make one of the many explanations more reasonable and credible. Existing data and special collected data, were sat up in a standardized way, studied and analyzed and the different contents were compared, in the aim to try to cover and answer the research questions.

4.4 Participant Observations

When performing participatory observation the researchers must have the trust and confidence of the informants (Saint-Germain, 2007). It is important that the researchers speak the "language" of the informants, in this case it was critical that the researchers did not use words that the teenagers did not understand. Participatory observation is a good method to use when one wants to explore how a group of people is affected by the use of a certain service in their everyday lives. It is useful for establishing a better understanding of the participant's situation particularly when the aspects might be difficult to verbalize for the participants. Participatory observation allows the researchers to take a more active role in the research, that is, not only sit on the sideline and observe.

4.4.1 Participants and Voluntaries

A total of 10 teenagers participated in the sessions. The teenagers could choose if they wanted to execute the assignments alone or as a group. The final result was three groups of two participants and three participants that chose to work alone. All the participants conducted the same assignments. Five participants were male and five were female, six of the participants were ethnic Norwegians and four were none ethnic Norwegians, their specific ethnic background were not emphasized. The participants were between 13-17 years old thus went to different schools in the area around Trosterud, some of the participants were still in middle school while some attended high school. The participation in the project was open to everyone that wanted to participate thus participants were not selected based on specific criteria, None of the participants were ordered to participate in the sessions. The participants could end the session at any time, the researcher did not set a minimum delivery from the participants.

The participants participated in the sessions voluntarily. Every aspect of the sessions was based on the concept of voluntariness. The reason for this is that every activity offered at Trosterudklubben is voluntary, for the study to reflect the natural practice at the club voluntariness was necessary.

5. Context, Setting and Methods

In this chapter the case studies at Trosterudklubben will be presented. The sessions and interview was conducted in cooperation with Ine Fahle, a master student the master programme Digital Media. Our aims and research questions throughout the study have been of different character[3]. The collaborative work performed is the execution of the sessions and the interviews at Trosterudklubben and some preparatory and concluding work that has been performed in advance and after the study.

5.1 Trosterudklubben

Trosterudklubben is a youth club that is located in Groruddalen. The members of the club come from different parts of Groruddalen. Trosterudklubben is open two days a week, but also have some special arrangements outside the normal opening hours. The activities at the club are mostly run by the clubs members. The seven employees at the club are all active in different areas of the clubs activities. The clubs is a safe, attractive place to for children to go after school. The users are divided into two different age groups, "juniors" and "youth". The members of the "junior group" are age 7-12, while the "youth group" participants are 13-18 years old. The club has an average of 200 children attending the club every week. The club offer different activities that the members can sign up for. Existing activities at the club today are; a song studio, film studio, media lab, Internet lab, computer game room, disco with DJ equipment, dance room, kitchen, activity room for soccer, basketball, etc. and a lounge where the billiard and Foosball tables are located. The members themselves are mostly in charge of the activities that take place at the club. They belong to different activity groups, which are in charge of the events with in their activity, such

[3] Ine Fahle is looking at in what ways user created content can contribute to creativity and belonging

as dance competition, film creation, trips etc. Trosterudklubben has its own website that is created and maintained by some of the clubs members.

Trosterudklubben is one of two youth clubs that is a part of Groruddalssatsningen. In this project we have focus on teenagers (13-18 years old), the "youth group" at Trosterudklubben consists of the correct age group. We got in contact with Trosterudklubben through Groruddalssatsningen. Children as design partners are widely tested in school settings. This is why we wanted to have the sessions in a youth club. The users are there on voluntarily basis and can choose themselves how active they want to be in different activities.

Trosterudklubben was contacted and they gave permission to conduct the sessions at the club during the clubs opening hours. Trosterudklubben received information about the project by e-mail and conversation done over the phone. After Trosterudklubben gave their permission a personal meeting was held at Trosterudklubben. Present at the meeting were Christina Mörtberg, Dagny Stuedahl, Ida Heyerdahl and one employee at Trosterudklubben. The agenda for the meeting was to plan when, were and how the sessions were to be conducted

The study took place in the “Web Editorial Group Room” and in the “common area” at Trosterudklubben in September 2007. The purpose of the study was to explore how teenagers can use their own language and their own media to express them selves about the public discussion of cultural heritage and how teenagers can function in different roles of a design process. Given this focus the researchers chose to conduct one pilot session and four additional sessions.

5.1.1 Procedures

We conducted three sessions at Trosterudklubben. The original plan was to conduct a pilot session before the three sessions, but due to the local governmental election, Trosterudklubben were closed at the date of the planned pilot-session-day. Because of time limit and other events organized at Trosterudklubben we decided to only conduct three sessions. Each of the sessions lasted for one afternoon during the opening hours of Trosterudklubben. All the sessions had the same agenda and were divided into four tasks to perform. The presence of adults depended on tasks to be performed and thus varied through out the sessions. All the sessions were audio recorded and photographs were taken. We used a camphone to take the photographs in attempt not to distance them selves from the participants. Research done by Lin Prøitz (2007) shows that people appears rather unaffected and unaware of being photographed with a camphone contradicted to being photographed with a traditionally camera (Prøitz, 2007). The teenagers could at any time ask for assistance from the adults present during the session.

5.1.2 Technology

To conduct the sessions we used one stationary computer and one laptop with operating system windows XP, Internet and bluetooth. The stationary computer used was property of Trosterudklubben while the laptop was property of one of the researchers. The stationary broadband and an ICE mobile broadband were used for Internet connections. The Norwegian company ICE offers a mobile wireless network which uses the old NMT450-network. The ICE box allows you to connect to Internet anytime anywhere. Further we used mobile phones with cameras and bluetooth. We used Blogger4 to set up the blog used for the sessions which is a Google blog service

[4] http://www.blogger.com/

where you can set up your own blog for free. We created the blog5 in advance of the sessions and created also different "users" as authors of the blog. The different prepared users were given the names "user1", "user2", "user3", and so on. The reason to do this in advance was to save time during the sessions and by naming the different "users" in this way the participant's movements could be tracked, but still kept anonymous. We used a digital camera with an audio recorder to record the sessions and a camphone to take photographs during sessions.

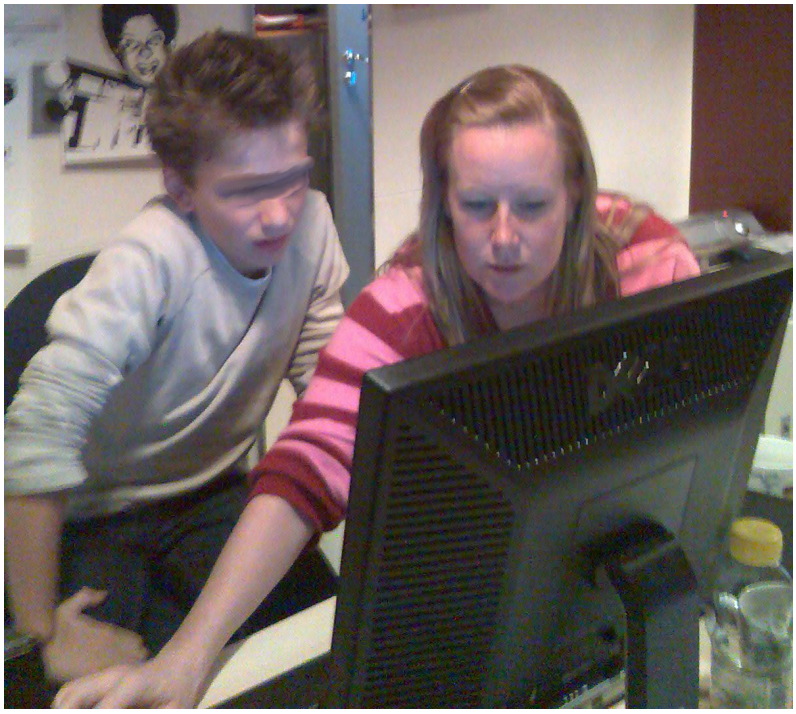
5.1.3 Session 1

The first session was conducted the 17th of September 2007. It was the first meeting the researchers had with the members of Trosterudklubben. We had brought with them five mobile phones with the necessary functions and one laptop to use in case of technically difficulties with the computer provided by Trosterudklubben

At the beginning of the session the voluntary participants were told to fill out a questionnaire. Eight teenagers filled out the questionnaire, but only three proceeded to the next task. When returning the questionnaire the teenagers were given the assignment to photograph Trosterud6 using their camphone. The Teenagers were told to plan how they should present Trosterud to other people who did not know about the place. Returning to the "Web Editorial Room" the teenagers was to transfer the pictures from the phone to the computer. When the participants returned with the pictures we demonstrated how they could transfer the pictures from the mobile phone to the computer using bluetooth. The participants transferred the pictures to the computer and then were given a unique user name and password to the blog. The teenagers were encouraged to test out the blog before they asked for help. There

[5] The URL to the blog is not exposed in this thesis due to security of personal data.
[6] The Teenagers were told to think that they should present Trosterud to other people who did not know about Trosterud.

were no restrictions on what they could write or what pictures they could post and there were no time limit on the assignments.



Figur 2: Researcher showing a participant how to post pictures on a blog.

5.1.4 Session 2

The second session was conducted on the 22nd of September 2007. The participants were asked to perform the same assignments in a similar way as the participants at session 1. Two females age 15 and 16 participated in this session, they worked in as a pair on the assignments. The participants used a camphone that they borrowed from the researcher. The participants were offered candy and cake as a recompense for participating in the session.

5.1.5 Session 3

For the last session at Trosterudklubben we did some design actions. Hence we moved the setting from the "Web Editorial Group Room" out to the common area of Trosterudklubben. The third session was conducted on the 24th of September 2007. The participants were given the same assignments as the participants at the two earlier sessions and they were offered candy during the session.

5.2 Interviews

Additional to the participatory observations of a sample of fourteen participants, all selected randomly from the participants at Trosterudklubben, was interviewed. The idea was to see the respondents' answers as cultural stories. This means examining the rhetorical force of what the interviewees says (Silverman, 2006). There are three types of interviews: structured, semi-structured and open (Silverman, 2006). The collection method semi-structured interview was chosen, first because the data from the interviews gave a possibility, after the participatory observations, to explore and clarify the likes and dislikes of teenagers regarding computers, internet and mobile phones. Second, the non verbal reaction, which also was essential, became visible for the researcher.

5.2.1 Participants

The participants that was interviewed was of different age and had different background and decided themselves if they wanted to be interviewed in a group or by themselves. The interviews took place in the "Web Editorial Group Room" and in the "Media Room" both at Trosterudklubben.

At total of seven teenagers were interviewed. It was conducted two group interviews, one group of three and one group of two, and two single interviews. Four of the interviewed teenagers were female and three were male. The interviewed teenagers were the age of 13-16 years old. Three of the participants were none ethnic Norwegians and as four sessions their specific ethnic background were not emphasized.

5.2.2 Procedures

The interviews were conducted Monday the 8th of October 2007. During this one afternoon at Trosterudklubben we conducted four semi-structured interviews. The following-up questions and value applied in the questions and answers were determined by the interviewer. Semi structured interviews were favourable to capture the different interviewees' thoughts on the subject. The interviewers had a short list of questions (see Appendix B) to be covered, to keep the focus and same structure of the different interviews, but follow up questions and examples were allowed. The questions were open ended, meaning that they were designed to encourage a full, meaningful answer using the interview participants own experience, knowledge and feelings. The interviews lasted from 10 minutes to 45 minutes. They were all conducted face-to-face.

5.2.3 Interview 1

The first interview was conducted as a group interview with a group of three females all age 13. The interview was conducted in the "Web Editorial Group Room". The three females were asked to participate by the researchers. The interview lasted for about 30 minutes.

5.2.4 Interview 2

The second interview was of a 16 year old female which also had participated in the sessions. The interview was conducted in the “Media Room” and lasted for about 20 minutes. The Teenager answered the question and was encouraged to use the computer to show the researchers her normal activity online.

5.2.5 Interview 3

The third interview was conducted with a 13 year old male. He wanted to play computer games during the interview. The interview was conducted in the “Media Room” in front of one of the computers stationed in the “Media Room”.

5.2.6 Interview 4

The fourth and last interview was a group interview. The group consisted of two male age 14 and 15. This interview was also conducted in the “Media Room”, but this time around a table with a laptop.

6. Results

In this chapter I will present the results from my analysis of the sessions conducted, the interviews held and the data collected through the questionnaires. I will look at how the teenagers react to the role as users, informants and testers according to Allison Druin's (2002) definition of roles of children in a system development process.

6.1 Participants

It was conducted three sessions each lasting for one afternoon. At first there were no problems recruiting teenagers to participate, but most of the participants decided not to continue on to assignment two. The first session was conducted in the "Web Editorial Group Room". Three male teenagers participated in the first session. Two of the participants worked as a pair while one decided to participate alone. Through out the session the three participants started competing on who took the best pictures and who took the most pictures. The competition was of a friendly matter.

For the second session the participation at Trosterudklubben was poor. We were told by the employees at Trosterudklubben that the reason for this low attendance was because Ramadan[7] had just begun. Every year the attendance at Trosterudklubben is low in the beginning of Ramadan. Despite of Ramadan two female teenagers participated in the second session, they decided to work as a pair.

The third session was conducted in the common area of the club. Five teenagers participated in this session, three females and two males. Two of the females worked as a group while the rest of the participants worked on their own.

[7] Ramadan is the 9th month of the Islamic calendar year. Muslims fast from sunrise to sunset, in addition to other rituals GHOZLAN, B. (2005) Islams fem søyler. http://www.islam.no/newsite/content/default.asp?Action=Article&nTopPage=2&nPage=12&nATID=99.

The interviews were all conducted at the same afternoon. Four females and three males were interviewed. It was conducted two group interviews, one containing three females and one containing two males. The two remaining teenagers were interviewed by them selves.

6.2 Teenagers as users

In the project we wanted to get an understanding of the teenagers activities, patterns, likes and dislikes (Druin, 2002). We used participatory observation where the researchers became a part of the activity and a part of Trosterudklubben. The researchers demonstrated the software and answered questions from the teenagers (Druin, 2002). In addition to the participatory observation data concerning the teenager's daily use of technology were collected by a qualitative questionnaire and interviews.

6.3 Questionnaire

Before each session the teenagers were asked to fill out a short questionnaire with questions concerning their everyday use of technology (see Appendix A). This was a qualitative survey to clarify the teenagers likes, dislikes and interest areas (Druin, 2002). The questionnaire consisted of questions that would map out the teenagers experience of the technology used during the sessions. Several teenagers finished the questionnaire, but not all of them were motivated enough to proceed with the remaining tasks. All the finished questionnaires are taken into account in this study. Figure 1 indicates the results from the questionnaire.

Age:	Years old	14,2
Gender:	Female: Male:	5 5
In possession of a mobile phone:		10
First got a mobile phone at age:	Years old	11,1
Uses the mobile phone for:	Calling: Sms: mms: Games: Chatting: Pictures: Other:	10 10 3 4 1 10 3
Uses computers at:	Home: School: Trosterudklubben: Other:	10 10 8 2
How often computer is used:	Every day: 4-5 times a week:	7 3
Use computer for:	Games: School work: e-mail: Chatting: Post pictures: Blogging: Surf online: Other:	6 9 4 10 4 0 7 2
Have tried to transfer pictures from mobile to computer:	Yes: No:	5 5

Figur 3: Results from the questionnaire given the teenagers at the beginning of the sessions

The average age of the participants was 14 years old. Seven of the 10 participants use Internet every day, three uses Internet 4-5 days a week. All of the participants had access to Internet at home and at school, eight used Internet also at the club. All of the participants answered that they uses Internet for chatting, nine of 10 used it for schoolwork. Four used the computer to publish pictures but none of the participants had ever used a blog. Some of the participants used the Internet for mail, playing games and surfing online. They all had their personal mobile phone and the average age when they first got a mobile phone was 11 years old. All of the participants used the mobile phone to place calls, send sms and take pictures. Even though all of the participants used the mobile phone to take pictures only 50 percent had tried to transfer the pictures from the mobile phone to a computer.

6.4 Interviews

Each interview followed the same interview guide (see Appendix B). The interviews were open so not all questions from the interview guide were discussed in each of the interviews. Only two of the seven interviewees attended after school activities except from Trosterudklubben. After school they are outside with their friends "not doing anything special" as they call it. The interviewees prefer Computer as media and the reason for this is because they fell like they have control and they like the fact that they can do more than one thing at the time. The function they use the most on their mobile phone is sms, but they think that functions like mp3 and movies are more fun to use. The participants uses between 4-7 hours a day online and the reason for going online is mostly to get entertained or chat with friends. Online use web pages which allow them to get in contact with friends and create their own space/homepage. In the use of these personal spaces there is a distinction between males and females. Females like to create and update their own space/homepage while the boys only create a space in order to get in touch with females. To see other people's personal spaces it is required that you create a space as well. One 14 year old male participant put it this way:

"Homepages are for girls!"

He explained that he only established a space so that he could see other female friends' spaces, but he did not personalize or update his space.

The teenagers only use Wikipedia.com and Google.com occasionally if they need to find answers for school work. The interviewees explained that they sometimes get a link from their teacher that they use. Only one of the seven participants could name a web page that provides help with school work.

6.5 Teenagers as testers and informants

When the teenagers take the role as a tester one wants to test if the technology meets the design goals. In a case where the teenagers take the roles as informants one wants to test if the project idea is appropriate (Druin, 2002). In this case we wanted to test to see if blog and mobile phone could be used as a communication media for the teenagers to participate in the public discussion about cultural heritage. We tested if blog and mobile phone met the design goals and to see if the combination of the two technologies were appropriate.

6.5.1 Sessions

After returning the questionnaire the teenagers were given three tasks. The first was to go out and photograph, with their camphone, what they think of as their cultural heritage. It was explained to them that we wanted them to show us and others what Trosterud is to them. There were not given any instructions on what they should take pictures of just that they should express themselves the way they felt like. The next task was to transfer the pictures from the mobile phone to the computer using bluetooth. The last task was to post the pictures and write comments to the photographs on the blog that we had established using www.blogger.com.

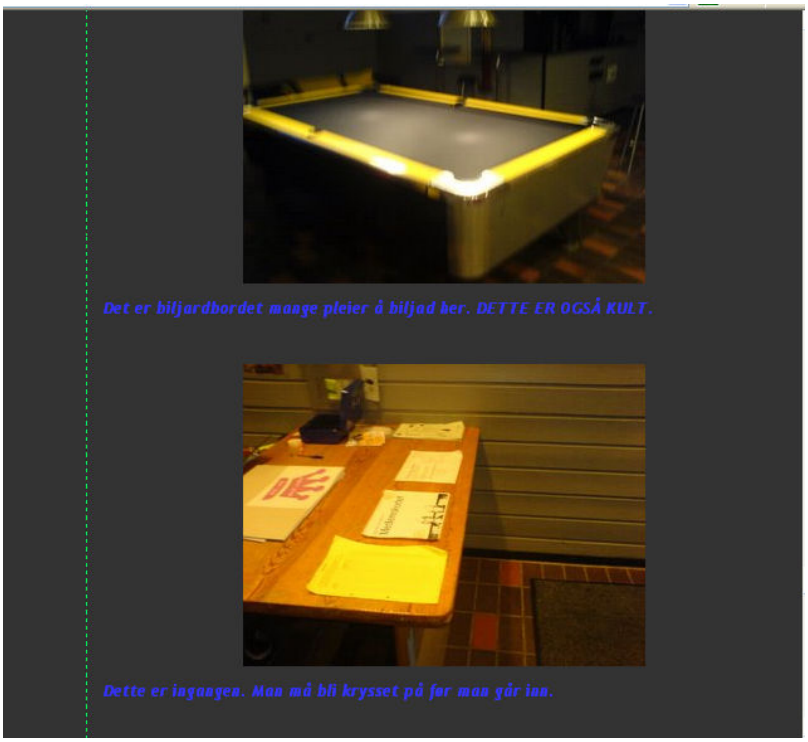
Following some screen shots from the blog are presented. The screen shots show some pictures taken and some comments written to the pictures:

Figur 4: Screen shot of blog

Every blog post had a header, this post were created by a thirteen year old girl witch completed the assignments by her selves. She wrote short comments to the pictures, but took more pictures than the average participant. The average participant took 4 pictures.

Figur 5: Screen shot of blog

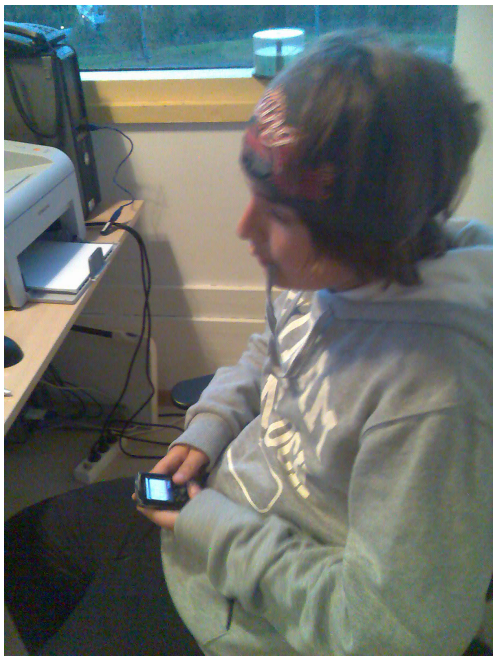
Her one can see the differences in the pictures taken by the participants. The picture above shows an overview of Trosterud while the picture at the bottom shows Trosterudklubben's new water cooler. Thus the picture above looks nicer the picture at the bottom together with the comment "This is the new water cooler" gives more information. We now know that Trosterudklubben has a new water cooler.



Figur 6: Screen shot of blog

This is another example of describing comments added to pictures. The comments add a meaning to the pictures.

6.5.2 The Technology



Figur 7: Participant transferring pictures from the mobile phone to the computer.

The teenagers were exposed to the following technology during the sessions: mobile phones with camera and bluetooth, computer with bluetooth and internet, www.blogger.com a blog-publication site online. All the participants were known to the procedure of taking pictures with their mobile phone. Two of the participants, witch borrowed a mobile phone from the researchers, needed instructions on how to take pictures with the borrowed camphone. Even though the two participants were given introduction in how to take pictures they managed to delete all the pictures they had taken. The two participants ended up with only one picture for the blog. The participants lost their motivation to perform the remaining tasks when they lost all their pictures.

All the participants needed help to transfer pictures from the camphone to the computer using Bluetooth, although 50 percents of the participants had tried this

procedure before. None of the participants knew what a blog was. It seemed that they had trouble understanding the fact that they were posting something online. All the participants knew what a web page was and most of the participants had one web page them selves. Three of the participants experimented with the different features on the blog, they changed the font and colours on the blog post. The male participants were more engaged in transferring pictures from the mobile phone to the computer than the females participants were.

6.5.3 Pictures

Figur 8: Picture taken with camphone by thirteen year old male. He explained that this is what Trosterud looks like.

Trosterud Centre is a small area with a grocery store, a kiosk, a fast food restaurant, a subway underground and Trosterudklubben. The participant did not move outside

this area to take pictures. Most of the pictures were taken were photographed outside of Trosterudklubben.

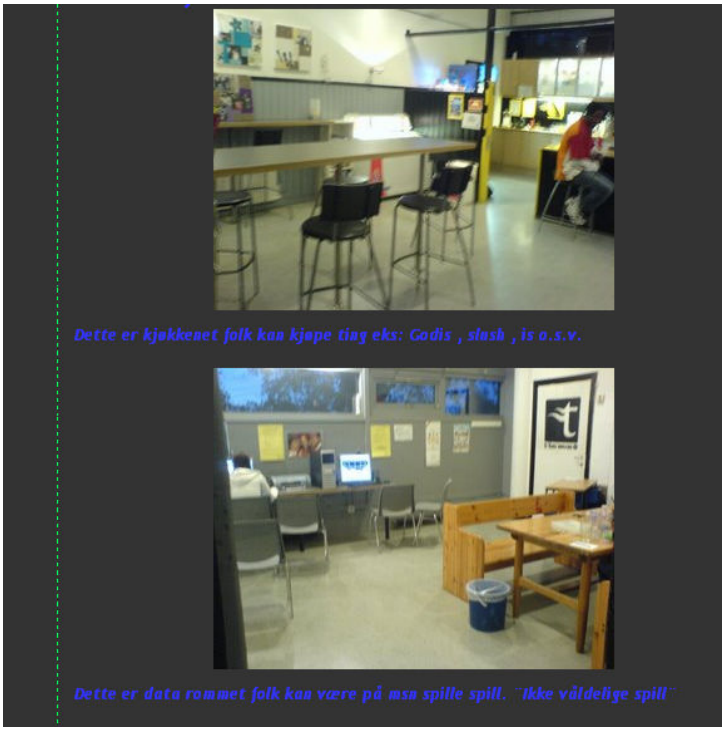
It was five males and five females that participated in the sessions. The males took more photographs than the females, thus the females took more photographs outside the club while the males took more photographs of people and of the activities offered by the club.

	Females	Males	Total
Pictures posted on blog	17	24	41
Photographed inside Trosterudklubben	5	14	19
Photographed Trosterud Centre	12	9	21
Undecided environment	0	1	1
Photographs with people in it	2	8	10
Stilleben[8] photographs	3	3	6
Photographs of activities offered at Trosterudklubben	5	11	16

Figur 9: The photograps divided into different categories and females and males.

[8]Artwork that represents motionless objects.

6.5.4 Comments



Figur 10: Sreen shot from the blog.

Five of the seven groups of participants wanted to write comments to their pictures. Most of the participants wrote comments that explained what could be seen on the picture. One group wrote more detailed comments explaining a little more than what you actually could see in the pictures, they wrote about their feelings about the setting of the photograph. One of the participants working alone had some comments that gave an insight into the feelings about the pictures. He wrote:

"The gym at the club, were one have fun and get amused"

One group of two males wrote all their comments explaining beyond what was to be seen in the picture. Some examples of these comments is:

"People usually play soccer, basket ball and land hockey. We have soccer tournaments or basket ball tournaments etc, Or we play just for fun"

"This is the kitchen people can by things like: Candy, slush, ice cream etc."

"This is the computer room people can use msn or play computer games. "Not violent games."

6.5.5 Motivation

Most of the participants showed motivation to perform the assignments. One group and one single participant were not motivated for the tasks. The group lost their motivation when they had trouble with the technology and they lost all their pictures they had taken. The single participant had to leave for soccer practice and therefore did not get to transfer all the pictures he had taken. This participant was the oldest participant trough out the sessions.

During the first sessions the three males participating started a competition which increased their motivation to perform the assignments. The participants of this session performed each of the tasks twice. These three participants were the only ones who tested out different functions on the blog. They changed fonts and colours for the fonts on the blog.

At the last session one female got inspired and motivated to perform the task because she saw that two other females participated. She came up and asked if she also could participate. .

Reward of candy motivated the teenagers to participate, but was not the motivation trough out the session. The same was for the interviews were the reward was a way to get the teenagers to participate, but was not a topic during the interview.

Teenagers working in groups were over all more motivated and pleased to perform the tasks given to them.

7. Discussion

In this chapter I discuss the findings from the cases study paralleled with the already existing literature presented. The aim of this study was to get a better understanding on how Participatory Design projects in Norway involving teenagers can be performed when the participation is voluntary. I wanted to look at children of age 13-17 in a youth group setting. The youth club Trosterudklubben were chosen because of its participation in Groruddalssatsningen. This is a youth club where most of the participants are none ethnic Norwegian. Research done by Oslo Fafo[9], shows that most teenagers stop going to youth groups when they are the age 16, but it also shows that they used to go regularly when they were younger (Bakken, 2007). The average age of the participants in the session was 14 years old. In this study I have focused on the following three research questions:

1. How can voluntary user participation work in a design project?
2. What motivates children to voluntary participate in a design project?
3. How do teenagers use their own media to present their interpretation of cultural heritage?

7.1 How can voluntary user participation work in a design project?

Time is short and if you shall participate in one activity you have to prioritise on behalf of another. In this case the teenagers at Trosterudklubben had to sacrifice other activities to participate in our research. No adults at the Trosterudklubben told the teenagers that they had to participate in our project, the participation was voluntary. The opposite of voluntary is involuntary, involuntary participation is

[9] Fafo is a social science research establishment which works with problems in work life, welfare policy and circumstances nationally and internationally. BAKKEN, B. (2007) Fafo. http://www.fafo.no/hist/index.htm.

when research is carried out in for example a school setting where the children need to do what the teacher tell them to do or of the parents are the one that wants their children to participate in the project.

The data collected from the sessions at Trosterudklubben shows positive and negative aspects around the voluntary participation. What we saw was that we got a skewed distribution of participants and the data that they produced. We had no control of the distribution of participants. It was impossible to decide in advance that we wanted an even share of males and females or an even distribution of age.
The premises for this research were that we should not affect the children's every day environment and the concept of the club that is voluntary participation. Consequently research conducting voluntary participation one need to consider and expect unforeseen factors that can affect the research. You need to know that you always compete with other activities and other trends in the community, such as what experienced with Ramadan, and Election Day during the weeks we conducted out field work.

We spent a total of four afternoons at Trosterudklubben, the first afternoon three teenagers participated in the sessions. The teenagers showed interested in the beginning of the sessions, but when they understood that the assignment was time consuming they chose other activities. Everyone has a goal with most things they do, people have a goal when they go into a store and they have a goal when they open a webpage. The teenagers coming to Trosterudklubben also had a goal, thus they all had in mind what activities they want to participate in that particular day even though they might not be able to tell you what this goal was. The employees at Trosterudklubben had made a poster in order to inform the teenagers that we were coming to the club, despite this poster the teenagers did not seem to knew about our project they were therefore not prepared to take a part of the project. The planned

pilot session that was cancelled because of the Election Day had probably helped us and the teenagers to be more prepared for the project.

Our research showed that the environment and the design place had an impact on the participants and their participation. Since we performed the research at the youth club we first thought that it did not matter which room we performed the sessions in as long as we used a room with the necessary technology where the participants could be from the other teenagers at the club. However we realised that the room we used for the first session was a room that the teenagers usually did not enter. Some of the teenagers believed the room was only for employees except that they were allowed to enter the room. The room was usually used by the "Web Editorial Group" who closed the door do to the others. When there was no one from the "Web Editorial Group" in the room they lock the door because of expensive equipment inside the room. We saw that the teenagers had problems entering the room because it was not a room they usually used for activities. Since our study wants us to perform the session in the children's own environment the room became a barrier was a problem for the experiment. Some of the teenagers were not comfortable with the room and therefore did not want to participate in the sessions.

The room was probably not the only reason that some teenagers did not want to participate being in this unfamiliar room with two strangers became a problem. Consequently, we had to do some design actions and change location. Hence we moved out to the common area where everybody not participating in a special activity usually hangs out. The move to a more public location implied that we became more visible, got more attention, and more teenagers wanted to participate. The teenagers were more open and active in this room because this was their space, which is a room, that they were used to hang out in and play around in. The teenagers approached us compared to the first sessions where we had to approach the teenagers. They had more friends around them and they also had some employees from the club

in the room. This all made them feel secure that made them more open towards us and to participate. At one point we had a crowd of teenagers around the table were we sat watching three girls transferring pictures from the mobile phone to the computer. Even though they did not participate they had comments on the pictures and came with ideas to what the girls cold write as text to the pictures.

In a voluntary setting like the one we used in this project is it important not to make the potential participants uncomfortable. This is of course something one has to respect also when the children are participating in voluntary basis as well, but when the children decide if they want to participate or not it is easier that they say no if they are uncomfortable with the setting. Another finding is that the participants were more open and talkative in the lasts session in the new space together with their friends and were they were not alone with us in a room. When children are the target group it is almost impossible to foresee matters like this. We thought that we were prepared since we had talked with the employees at the club that knows the teenagers and also know how they act we at least had the basics like were we were conduct the sessions planed out. Once again we saw that one can not foresee how teenagers will react. And once again we had to adjust the research so that it would be appropriate for the young participants.

Participation in an organized after school activity are voluntary. It is a part of the concept of voluntary organization and the concept of spare time that no one can be forced to participate. One does not participate in after school activities because one has to, but because one wants and it is attractive (Friberg, 2005), and this affected the sessions we carried out based on voluntary participation. One can neither estimate the number of participants nor the distribution of gender and age. In a school setting with resident frames one has little more control over participants. One can imply that one wants participants in a certain age group and that one needs the same quantity of male and female. One will meet the children in a setting where they are all collected

and one easily can explain in plenum about the project and why it is so important that they participate. Children generally wants to help adults and by explaining them that you can not perform this task without their help can make that the children more enthusiastic about the assignment and want to perform good.

7.2 What motivates children to voluntary participate in a design project?

My second research question was what motivates children to voluntary participate in a design project. Throughout the sessions we noted that the motivation to participate and to perform the tasks in the session differed. The boys were more engaged with the technical functions than the girls. Further the boys compared their mobile phones in terms of different functions that each of the mobile phones had. The male participants were more eager to talk and to tell us about their mobile phones. The standard of the mobile phones the girls and boys had did not differ. The boys also were more interested in the process of transferring pictures from the mobile phone to the computer than the actually fact that they were posting the pictures online. My study shows that Teenage boys are more interested in technical functionality than females are. Further the research shows that females are more concerned about the aesthetic than the technology. Hence, designing for both genders, one need to bring both women and men into the design process, but one need also to adapt the tasks in order to motivate both women and men.

After the first day with poor participation in the session, we decided that we needed something that would motivate the teenagers more. We needed a remedy that would interest the teenager enough so that they would participate in the project. After conversation with one of the employees at Trosterudklubben we decided to bring candy to the next session. We wanted to test if the teenagers would be more interested if we gave them a reward for the participation. We brought candy and cake for the two next sessions. By giving the teenagers an informal reward for their

participation we were able to motivate the teenagers to take a part in the research. Candy was not the motivation through out the assignment, but it worked as an ice breaker in the beginning which lead to the teenagers having a more positive attitude towards the assignment.

Throughout the sessions some of the participants lost their motivation due to different disturbances. What we saw from the sessions was that aspects that we had no control over could unmotivated a participant so that s/he dropped out of the session. Examples of such disturbances were technical difficulties and other more attractive activities. The attention drawn to other activities were only a problem in session three where we were located in an open more public space which lead to more temptation for the teenagers.

There are several aspects in addition to what discussed above that affected the willingness to participate in the project and the result was visible throughout the sessions. The use of the teenager's own way of talking and letting them use their own means of communication is one example. The research shows that the children were familiar and had constructed their own homepage, the girls especially liked to update their homepage. The participants were not familiar with the concept blog, and had never heard about blogging. What they did not understand was the word blog. We had to explain to them that it was writing and posting pictures on the internet, which is what they do on their own homepage. They were more comfortable with these comments and understood the meaning of this. Druin (2002) have found that it takes some time for the children to understand their role in the design process which mean that they understand their assignment in the project. By using the children's own language one can help them understand their role. Further, when the children accept their role in the design process they are more motivated towards the assignment.

One other motivation that found among the teenagers especially the males, was how they created a competition between each other that motivated them during the session. The teenagers that competed took more pictures and they had lesser

problems to write comments to the pictures compared to the participants at the other sessions. By using some methods or parts of methods that trigger the competitive side of the teenagers, one might get the teenagers to open up and they will provide you with the information that you are looking for.

Our research shows that motivation is important when working with voluntary teenagers. Without the motivation throughout the study the researchers will not get the results they are looking for. The difference from involuntary participation is not that you don't need to motivate the children in a school setting. Motivation is very important in both settings, but how to motivate can differ. In a school setting children are used to solve learning tasks and this can be a motivation by it self. Nine out of ten students in Norway attending secondary or high school agree or partially agree that "schooling are important no matter what you plan to do further in life", 95 percent agrees that it is important to get good grades (Rossow, 2003). When depending on voluntary participation one need to motivating the teenagers to voluntary participate in the research and then when you get them to participate you need to keep the motivation throughout the session.

Comparing the data produced from the teenagers that we saw as not motivated and the teenager we saw as motivated showed us that the teenager that were motivated took more pictures and wrote more text to the pictures. This was also reflected in the interviews were the motivated teenager's interviews lasted longer. When performing participatory design based on voluntary, teenagers, is it important to find out what motivates them and bring forward that motivation in the children. This may seem as obvious in a study like this, but it is important to remember and always have this in mind when working with teenagers and/or children. When teenagers and children are motivated they say what they feel at the moment and are more honest. Designer and researcher this is what we are looking for, we want to get to know the children inner feelings, likes and dislikes. We are not looking for the answers that we expect to get from the teenagers, we are looking for the answers that reflect the reality either if this is not what we anticipated.

7.3 How do teenagers use their own multimedia to present their interpretation of cultural heritage?

The third and last research question focused on how children could participate in a public discussion of cultural heritage with the use of their own media. The media we used in the conducted sessions were mobile phones, computers, and blog on internet. Statistic shows that 73 percent of teenagers age 13-15 used internet daily in 2006 and 82 percent of teenagers between 16-19 used internet daily (SSB, 2007b). Statistics also shows that 94 percent of the Norwegian population between 9-79 years old have their own mobile telephone (SSB, 2007a). These statistics tells us that mobile phone and internet are the teenagers own media. How do they use internet? Looking at statistics again shows that teenagers between 9-19 years use internet for different web pages and for chatting. My study shows that teenagers use internet for chatting and web pages. During the interviews asked the teenagers what kind of web pages they use and what they use them for. The results show that teenagers use a web page in order to get in contact with other people. Girls also used web pages to be updated on the latest news about celebrities and they use web pages that offer online games. Males use the internet to play games but also watch movies like the ones offered at youtube.com. A surprising result after our days with teenagers was that none of them were familiar or had ever heard about blogging. Blogging is a well know expression for adults, but our study shows that it is not used among this group of teenagers. This became obvious in the first session and for the next sessions we avoided the word blog. Thus the fact that teenagers do not use the word blog, what they do online with their homepages is a type of blogging.

Teenagers have a need to participate in a public discussion and especially in a discussion concerning their environment and daily life. Groruddalssatsningen is a project involving the inhabitants of Groruddalen thus also the children living in

Groruddalen. I believe that a portal where children are the users and the users generate the content can be a good way of involving the children in the project. From my study I saw that the teenagers were eager to show their environment and tell about their feelings for it. One concern I had before starting the project was that the teenagers would only take pictures of them selves and not take any pictures of their environment. The result of the sessions shows that the teenagers that were motivated to perform the tasks did the opposite of what I had expected. They took the assignment seriously and showed us Trosterud seen through their eyes. The result of the pictures on the blog shows that the teenagers of Trosterudklubben are extremely proud of their youth club and what the clubs offer the community of Trosterud. Together the teenagers took pictures of every activity room at Trosterudklubben which they could access without permission by the employees. Only two pictures out of 41 were close up pictures of teenagers at the club which indicates that the participants were more eager to show Trosterudklubben than themselves and their friends. As mentioned earlier we gave no instructions of what they should take pictures of at the beginning of the sessions.

Teenagers might have trouble describing with words their views on a given topic and especially to adults. This study shows why it is so important to adjust the setting so that they also have a say in a public discussion. Children are users of the local environment and we all agree that children are the future. Knowing how we can use children's expertise to design new technology, imagine how we can use them to improve the local environment.

8. Conclusion

What can be concluded from my thesis is that the 10 children participation in the sessions and the 7 children interviewed, all in the ages of 13 to 17 involved in this project contributed considerably in one way or the other. The children generated creative comments, feedback and gave us as an insight in their everyday use of technology and how they reacted to new ways of expressing themselves through technology. They gave us as researcher inspiration and a different perspective on the process of user involvement in systems development.

To get an insight on how children use technology in order to express themselves and how they use technology in general, sessions were conducted, during which the children were given tasks to solve. This proved to give us successful data and also showed that including teenagers in a design process can give a rich insight about the teenagers and their use of technology. The children decided themselves if they wanted to work in group or not. The result of this was one group of two male ages 13, one group of two females age 16 and 17, and one group of two females age 13 and one female and three male working alone. All the teenagers were given the same task, but with no restrictions about how much data they had to produce. The only restrictions they got was that they had to use a mobile phone to take the pictures and that they should take pictures of what Trosterud was for them. One outcome of my project shows that there is a relationship between understanding of the task and data produced; children that were motivated from the beginning produce more data than the children that needed us to motivate them to participate in the project. A reason for this could be that self motivation is stronger than motivation provoked by others. One of the tasks was to take pictures with their mobile phone of something that they wanted to share with others about Trosterud. The teenagers presented pictures with various themes like houses at Trosterud, the club, activities at the club, still life, etc. They took pictures of what they were familiar with and the pictures were very concrete. The next task, which showed us how they reacted towards new technology

generated data in the sense of comments from the teenagers. In this task the children were showed one time how to transfer pictures from the mobile phone to the computer using bluetooth. The teenager's comments and ability to learn new technology showed that both male and female age thirteen or seventeen all picked up the concept of the technology fast and they wanted to learn and try them selves. None of the participants had trouble to perform the task after being showed on time. Some of the participant found by them selves ways to transfer the pictures faster for example by transferring more pictures at the same time without being showed how to do this. This showed us that teenagers of this generation were not afraid to try new technology that they were unfamiliar with.

Several aspects can affect the generation of data in sessions. First, some children chose to work alone. The sessions were audio recorded, but the records of the children working alone were not useful because it did not capture how they reacted to the technology because they did not have anybody to discuss the technology or the tasks with. Therefore, it might have been more useful if all the teenagers were asked to work in groups, but then we would have influenced the concept of voluntariness. Another aspect is the lack of screening process. The participants for the sessions did not go through a screening process, this also because of the aspect of voluntariness. The outcome of the data varied extremely because the teenagers did not go through the same screening process based on certain criteria. A screening process might in this case cause that important observations about the teenagers in such a setting is not being caught. But this can vary depending of the aim of the sessions. In this project 6 of 10 contributing children did provide usable information abut Trosterud and teenagers and technology. The 4 last teenagers did not provide us with much usable information. When teenagers are involved in design processes the comments, the data produced and the process of how they use the technology can be difficult see how one can use further in a design process. In can be important to have in mind that we are not looking to prove what we thought we already knew about teenagers, but we are looking for new insights and ideas for the project we are working on. No

adult can ever truly understand a teenager this is why these insights are so important. Compare what can be compared, ages, genders, motivation, background, technology background and so forth. By doing this comparison you will collect usable data and you will get an insight of the teenagers likes and dislikes. The children in this project gave us knowledge about teenager's way of thinking and way of acting among their friends outside of school. We got an insight of how they express them selves and how involved they are in their own community.

This project producing a technology for teenagers has given a much better foundation for development of technology for teenagers than I had before this research. By performing theses sessions and interviews I see that no one can read themselves to the knowledge of likes and dislikes of children. This is a process which needs to be a part of every design process where children are the targeted users. Teenagers have better intuitiveness regarding technology and usability than others. Children use technology in their everyday life to communicate and express them selves. They have experience from creating web pages, playing computer games, surfing the Internet, and various software. Teenagers are savy users of technology as it is a part of their everyday life and technology is playing a part in forming their identity. By having the children talk about software and web pages that they use in their everyday life and letting them show us how they use this technology may increase the usability aspect and the success factor of the technology that we plan to produce. The task of taking pictures was the part of the session that the teenagers had least problems with. They had no problems finding motives to take pictures of. This was also the technology they were most used to among the technology that we used for the project. When it came to writing comments about the pictures at the blog their creativity slacked a bit. None of the teenagers that participated in the sessions had ever used a blog. Some of them had their own web pages, but they did not see the comparison and there fore did not really understand what it meant to post these pictures online. This shows that the creativity is related to recognition of the

technology which might show that teenagers need some time to get to know the technology before they make their comments about it.

In participatory design projects, children can be involved as users, testers, informants, and designers partners. In this project the children had the role as users and informants. Designers of a project may include the children as design partners in order to create an equal relationship. This is a time consuming and careful process. Not every child is able to have the role as design partner, and therefore the concept of voluntary participation is not ideal for such a approach. Even though a few of the children in this process showed tendency of the qualities required for a child to be design partner the process of deciding which child is suitable for the task does not fit the setting in a voluntary after school activity.

It is helpful to include the users when a new system is designed. Participatory Design can contribute to a mutual learning between the developer and the users. The users learn about the technology options from the developer and the developer learn about the user's everyday practice. Mutual learning is an efficient way both for developers and for users to gain knowledge. This mutual learning will increase the change that the system will reflect the users' needs and it will increase the change that the users will use the software. Nevertheless when teenagers are the users and the technology is to be used outside of school the sessions should be hold in the natural environment of the child. This will increase the change that the data reflects the child's own world. Various methods can be used to include the users in the design process. One is to arrange workshops or activities, where the developer can observe and work together with the child user to gain new knowledge about the child as user and gain knowledge about the users likes and dislikes. Some of the teenagers were very open and clear about their feelings towards the technology. It is important that the teenagers understand their role and that they are comfortable with the setting around the sessions this will most likely increase the amount of useful data collected. This

study shows that participating teenagers can have the role of user, tester, informants and design partner, but that when the research is based on voluntary participation the roles of user, tester and informants are the most effective roles.

The user can be included in the design process in various degrees, this depends on how much input the developer need from the user. The optimal situation is when the user and the developer work together as equal design partners. When performing sessions or workshops one can collect data and document them by observation, sound record or video record. When using video recording one need to be aware of the use concerning privacy. If the user is young one need the parent's agreement to video record the child. Observation might be the best way to capture the details of the session so one should not only rely on recordings of the session. If the children work in pairs it is easier to collect information since they have some one to discuss their ideas and thoughts with. Letting the teenagers use technology freely to express them selves gives you numerious data to collect, not all of these might be helpful further in the development. It can be difficult to decide what is important for further work and what is not. Some guidelines can be helpful in this process.

9. Future Research

Future research that needs to be done is to model some guidelines that can be used in participatory design settings like the one at Trosterudklubben. It will be easier for the researcher to measure the data collected if there are some guidelines to follow. Future research may also include performing the same type of tests in a school setting so that the comparison can be made more visible. Since blogging is not part of what teenagers of today use to express them selves with it can be interesting to test how the teenagers express them selves with their own ways like msn or their web page at www.piczo.com. Groruddalssatsningen is an ongoing project and is in an early stage, if the goal is to open up for at portal where teenagers of Groruddalen can connect and chat about their life in Groruddalen I believe they need some more research and that they need to bring teenagers from the local area into the design process not only as users, testers and informants, but as design partners. This process has showed me how extremely difficult it is to predict what is "cool" and what the teenagers like to do in their spare time. Due to this the project involves many aspects and has potentially various future research projects regarding development and advertises to get the teenager to use the portal in the "correct" way. One needs to look at the design, the pedagogical effects, make prototypes and so forth. It can be interesting to see if a local web page like this can compete with the thousands of national web pages on the market and if the teenagers will prefer a small local community rather than a large national one. It can also be interesting to look at how these types of technology can be used more frequent in school to help teaching cultural history or other subjects. How can technology be a tool for school as well as for entertainment?

10. References

ANDREASSEN, K. (2007) Befolkningsstatistikk. Innvandrerbefolkningen, 1. januar 2007. Statistisk Sentralbyrå.

BAKKEN, B. (2007) Fafo. http://www.fafo.no/hist/index.htm.

BRANDT, E. (2006) Designing exploratory design games: a framework for participation in Participatory Design? Proceedings of the ninth conference on Participatory design: Expanding boundaries in design - Volume 1. Trento, Italy, ACM.

BRATTETEIG, T. (2003) Making Change - Dealing with Relations between Design and Use. Department of Informatics, University of Oslo, 227.

BYDEL_GRORUD (2007) Strategisk plan Bydel Grorud 2007-2010. IN OSLO KOMMUNE, B. G. (Ed. Oslo.

BØDKER, S. (1996) Creating Conditions for Participation: Conflicts and Resources in Systems Development. 11.

DRUIN, A. (1996) A place called childhood. interactions, 3, 17-22.
DRUIN, A. (1999a) Cooperative inquiry: developing new technologies for children with children. Proceedings of the SIGCHI conference on Human factors in computing systems: the CHI is the limit. Pittsburgh, Pennsylvania, United States, ACM Press.

DRUIN, A. (1999b) The Design of children's technology, San Francisco, Morgan Kaufmann.

DRUIN, A. (2002) The Role of Children in the Design of New Technology. Behaviour and Information Technology (BIT), 21(1), 1-28.

DRUIN, A., BEDERSON, B., BOLTMAN, A., MIURA, A., KNOTTS-CALLAHAN, D. & PLATT, M. (1998) Children as our technology design partners. The design of children's technology. Morgan Kaufmann Publishers Inc.

DRUIN, A., STEWART, J., PROFT, D., BEDERSON, B. & HOLLAN, J. (1997) KidPad: a design collaboration between children, technologists, and educators. Proceedings of the SIGCHI conference on Human factors in computing systems. Atlanta, Georgia, United States, ACM Press.

FRIBERG, J. H. (2005) ungdom, fritid og deltagelse i det flerkulturelle Oslo. Oslo Fafo, 16.

GHOZLAN, B. (2005) Islams fem søyler. http://www.islam.no/newsite/content/default.asp?Action=Article&nTopPage=2&nPage=12&nATID=99.

HELLEVIK, O. (1992) Forskningsmetode i Sosiologi og Statsvitenskap, Oslo, universitetsforlaget.

IPSOS (2007) Glossary of Research Terms,. http://www.ipsos-mori.com.

IVERSEN, O. S. (2005) Participatory Design Beyond Work Practice – Designing with Children. Department of Computer Science. Aarhus, University of Aarhus.

KUHN, S. (2000) Design for People at Work. IN WINOGRAD, T. (Ed.) Bringing Design to Software. New York, ACM Press.

LØVVIG, B. B. (2007) Groruddalen. Oslo, http://www.groruddalen.info/.

MILJØVERNDEPARTEMENT, D. K. (2005) St.meld. nr. 16 - Leve med kulturminner. IN MILJØVERNDEPARTEMENT, D. K. (Ed.

MULLER, M. J. (2002) Participatory Design: The Third Space in HCI. *The Human-Computer Interaction Handbook: Foundamentals, Evolving Technologies and Emerging Applications.* Mahwah, NJ, Lawrence Erbaum Associates, Inc.

MYERS, M. D. (1997) Qualitative Research in Information Systems MISQ Discovery.

PRØITZ, L. (2007) The Mobile Phone Turn - A Study of Gender, Sexuality and Subjectivity in Young People's Mobile Phone Practice. Faculty of Humanities. Oslo, University of Oslo.

ROSSOW, I. (2003) Ungdommen nå til dags – tall fra «Ung i Norge 2002».

SAINT-GERMAIN, M. A. (2007) PPA 696 RESEARCH METHODS DATA COLLECTION STRATEGIES II: QUALITATIVE RESEARCH. Long Beach, California State University

SILVERMAN, D. (2006) Doing Qualitative Research, Thousand Oaks, CA, USA, SAGE Publications.

SLIPHER, P. D. (2007) Oslo kommune Plankontoret for Groruddalen. IN ANDRESEN, A.-J. (Ed. Groruddalssatsingen - en innsats for bedre miljø. Oslo, Oslo Kommune.

SSB (2007a) Andel personer i alderen 9-79 år med tilgang til ulike medier og elektroniske tilbud i hjemmet. Prosent. Statistisk Sentralbyrå.

SSB (2007b) Andel som har brukt Internett en gjennomsnittsdag, antall minutter brukt i gjennomsnitt blant alle og blant brukere. Hele landet. 2006. Statistisk Sentralbyrå.

SSB (2007c) Informasjonssamfunnet. http://www.ssb.no/ikt/.

SWENSEN, G., ANKER, M. & SÆTERDAL, A. (2005) En plass for alle. Kulturminners og kulturmiljøers plass i det flerkulturelle Norge – møtesteder i by. Niku.

AALANDSLID, V. (2007) Innvandreres demografi og levekår i 12 kommuner i Norge. IN 24 (Ed. Oslo-Kongsvinger, Statistics Norway.

Appendix A

Questionnaire given to the participants to answer before each session.

1. Navn: ……...
2. Alder: ……...
3. Kjønn: Jente ☐ Gutt ☐
4. Har du mobiltelefon? Ja ☐ Nei ☐
5. Hvis ja, hilken type? ……
6. Hvor gammel var du da du fikk mobiltelefon? ..... år.
7. Hva bruker du mobiltelefonen til ? Du kan sette flere kryss.

Ringe ☐ Sende sms ☐ Sende mms ☐ Spille ☐ Chatte ☐ Ta bilder ☐ Annet ☐

8. Hvor bruker du PC? Du kan sette flere kryss.

Hjemme ☐ Skole ☐ Klubben ☐ Annet ☐

9. Hvor ofte bruker du PC?

Hver dag ☐ 4-5 ganger i uken ☐ 2-3 ganger i uken ☐ 1 gang i uken ☐

Mindre enn en gang i uken ☐

10. Hva bruker du PC'n til? Du kan sette flere kryss.

Spill ☐ Skolearbeid ☐ Mail ☐ Chatting ☐ Legge ut bilder ☐ Blogging ☐

Surfe på nettet ☐ Annet ☐

11. Jeg har prøvd å overføre bilder fra mobil til PC: Ja ☐ Nei ☐

Fylles ut av Ine/Ida

Lånetelefon: .....

IMEI: .....

Brukernavn: .....

Jeg godtar med dette at jeg er ansvarlig for mobiltelefonen jeg låner til dette

prosjektet.

.....
Underskrift

Appendix B

Interview guide used during the semi-structured interviews conducted in this study.

1.Hvor gammel er du

2.Hvilken klasse går du i?

3.Kjønn?

4.Hvilke kulturer føler du tilhørighet til?

5.Hva gjør du etter skolen/SFO?

6.Driver du med noen fritidsaktiviteter?

7.Hva beskriver deg?

8.Hvilket medium/elektriske ting bruker du/dere mest tid på?

8.1.Hvorfor det?

9.Hvilket medium/elektriske ting liker du best?

9.1.Hvorfor det?

Mobil

10.Hva er den kuleste funksjonen på mobilen din?

11.Hvilken funksjon bruker du mest?

Nett

12.Hvor mye tid bruker du/dere på nettet?

13.Hvorfor går du på nettet?

14.Kan du vise oss det kuleste du gjør på nettet?

14.1.ser du bruker mye ..... hva er det som får deg til å bruke det?

15.Hvorfor gjør du dette?

16.Hva er det som gjør dette så bra?

17.Hva vet du er der ute?

18.Hva vet dere om som dere ikke bruker? Er det noen sider som dere vet som om høres kule ut som dere ikke bruker?

19.Hva kunne du ønske at du kunne gjøre på nettet?

20.Den perfekte nettsiden for deg, hva inneholder den?

21.Hva kunne du ønske at du kunne gjøre med mobiltelefonen?

22.Er det noen sider hvor du skriver/legger inn noe? Input/output

23.Har du noen gang lagt ut egen produsert innhold?

- 23.1 I så fall hvor?
- 23.2.Hvorfor ikke?
- 23.3.Vet du hvordan?
- 23.4.Vet du om noen steder?

24.Hvordan brukes datarommet/hvordan forholder du deg til datarommet?